EARTHWATCH/Cloud Sandwich rwh 10/25/95

Scientists make a cloud sandwich over the Great Plains to get a taste of the world's weather.

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Sunlight not only heats up the air, the sea and the land, but some of it even heats up clouds. No one is sure how much, but it might be worth finding out. Heat stored in clouds can influence wind patterns, precipitation and even the future of Earth's climate.

A group of scientists just spent two weeks in northern Oklahoma trying to measure the solar energy that clouds absorb. John Vitko coordinated their work for the U.S. Department of Energy.

Vitko says they used two airplanes to make up a "cloud sandwich." One plane measured how much sunlight hits clouds on top, the other measured how much sunlight comes out below.

"That's a real challenge to do, and it's a breakthrough in the fact that we're able to do that. One of those aircraft is at 43,000 feet, so it's above the lower layer of the atmosphere, and the other is flying at either 1500 or 5500 feet, so it's measuring the bottom of that atmospheric column. And the idea is to measure both the top and the bottom of that column..."

... and then figure out what happened in between.

After sunbeams hit clouds, they bounce around inside them. The solar energy can heat up water droplets and dust particles... and that heat will in turn warm up the rest of the atmosphere.

Vitko says his colleagues will use the new information about sunlight and clouds to refine computer predictions of Earth's weather.

They're especially interested in the rising levels of carbon dioxide in the atmosphere. This carbon dioxide and other greenhouse gases might warm the atmosphere several degrees in the next 100 years. An increase of just a few degrees could dramatically change Earth's climate. Computer predictions -- accurate computer predictions -- could help us prepare for those changes and maybe even avoid them.

SOURCES: Int. w/Vitko; U.S. DOE news release dated 10/5/95